

THE ACADEMICIAN.

VOL. I.

NEW-YORK, THURSDAY, APRIL 9, 1818.

NO. 2.

PUBLISHED SEMI-MONTHLY, BY ALBERT & JOHN W. PICKET, AT 3 DOLLARS PER ANN.

THE ACADEMICIAN.

NO. V.

Injuria autem nulla capitalior est quam eorum, qui, cum maxime fallunt, dant operam ut viri boni videantur.

There is not a greater piece of injustice than that of those, who, at the very time they are most engaged in PRACTISING DECEIT, do all they can to appear MIGHTY GOOD SORT OF MEN.

CICERO.

Ignorance can effect nothing useful in the province of education; sciolists or quack pedagogues retard the mental improvement of youth, and excite against the profession, which is honourable in itself, undeserved and ungenerous aspersions. Such men, indeed, ought to be treated with asperity; but while they are amerced for their own inadequate qualifications both moral and literary, the public, who treat them thus, should be careful, not to wound the feelings of honourable men. I would be one of the first to lift a pen in defence of the public, when the interest of our country's hopes is at stake; and one of the first, in defence of the character of worthy instructors, who have been in every age, esteemed among the greatest benefactors of man. I do not pretend to deny, that in the scholastic profession, as well as in every other, there are men who ought to be driven from society, by the plunder and injury of which they live.*

Every city in the United States has been pestered by such men. New-York has had her share. Our city, at various times, has teemed with persons of this description, and our papers laboured under the burden of their newly invented methods of facilitating the instruction of youth. But such have been treated with so much asperity in our public prints, that neither they nor any others of their fraternity, dare offer their nostrums to an injured public and still more injured youth. Former impositions have opened the eyes of some part of the community, who now view with more discrimination and care, the

* Quackery is not confined to this side of the Atlantic. Almost every private tutor, (says Dr. Knox, in his treatise on Liberal Education) who, according to the present fashion, takes *parlour pupils at an immoderate price*, pretends to some *nostrum*, OR NEW AND EXPEDITIOUS METHOD of teaching; which proves infallibly, that all the masters that have presided at Eton, Westminster, Winchester, the Charter House, Merchant-Tailors, and St. Paul's were fools and blockheads, in comparison with the redoubtable and self-important innovator or empiric.

pretensions of those, who wish to become the instruments in forming the youthful mind. We hear nothing of late of those men, who without books, or any requisite study on the part of the pupil, promise to teach the theory of language, or the practical applications of science, in fifteen or twenty lessons. Men of such bare faced impudence and effrontery have been expelled from our city, and are viewed as robbers of the public good. It would be well for society, were some of those, who have good sense enough not to publish quack advertisements, but whose acquirements are limited to a partial knowledge of the grammar of our language, to the making of handsome flourishes in writing, or numerical calculations, to be classed in the catalogue of those who are condemned as unfit to superintend scholastic institutions. This would redound much to public benefit: for I doubt, whether there be greater pests in society, than those who rob the public of their money, and our youth of their time, which under a judicious and good instructor would be improved to advantage.

These indeed are evils: but there are others which demand the serious attention of the public. I mean those inevitably resulting, when men are not instructors by *profession*; but only from *necessity*. They aspire to something more dignified, than the office of preceptors;—to a profession; either of *law*, of *medicine* or *divinity*!—I do not blame them because they wish to be *honoured* and *honourable*; it is the common nature of us all. But I blame them, because though inexperienced in the art of teaching, and often incompetent to the task, from the want of talents, they undertake it; and certain it is, that inexperience is not a fit teacher. I have always been impressed with the belief, that experience in life as well as in literature and science, was the best instructor, and I still still entertain that opinion, until I see the benefits of the one, equal those of the other.

In mechanical pursuits, no man is supposed to be a good workman, unless he have regularly served a certain number of years. In law, in medicine, in divinity, it is requisite to have studied a specified time, before admittance to practise, can be gained. But in teaching, he who feels disposed to prevent starvation, or obtain pecuniary means to assist in studying one of the learned professions, is at liberty, to open a seminary, and frequently is patronized very liberally. No examination is made, relative to his acquirements; and his school is sure to flourish, unless by a too great display of quackery, by *gross and illiberal calumny*, or immoral conduct, he forfeits the confidence of his employers. Too often do parents send their children to men, with whose abili-

ties and character, they are wholly unacquainted. But would they go to a tailor and ask him to make a coat, unless they had reason to believe, he understood his business? Do they ask any mechanic to work, unless they think he is qualified? The houses of shoemakers who work well, are over run with customers. Men cannot trust an inexperienced barber to cut or dress their hair or shave them: but still, they trust their children to those equally as unqualified, as an inexperienced tailor, shoemaker or barber. Strange infatuation! They stand about the cut of a coat, the looks of a boot, or the loss of a lock of hair, while their children are neglected. But is it not as difficult to *teach properly*, as to preach sound doctrine, defend with success a bad cause, to mend a shoe "*handsomely*," cut a coat "*neatly*," or dress fashionably a *head of hair*? If so, why is not as much attention paid to preceptors' qualifications, as to those, engaged in the pursuits just mentioned?

There are in the United States, hundreds of men who are engaged in the instruction of youth, merely to obtain such pecuniary aid as to enable them to obtain a profession; but who at the same time despise the business; a business by which they live, and hope in time to become honoured. Is it not probable, that those who condemn and yet follow it, will not devote to it the requisite attention, and of course, that their pupils cannot improve much? The office of teacher has often been made a ladder to more dignified employments to the great detriment of our youth.

If it be necessary, in the learned professions to pass examinations, and receive diplomas as proofs of progress and adequateness to the duty in which the students are about to engage, I ask, why it is not as necessary, that all who enter into the most difficult of professions, should not serve a certain number of years in the academies of men of approved talents and morality, be publicly examined by a committee appointed for that purpose, and receive diplomas, as at our collegiate or medical commencements? I do not mean, they should be granted upon the same easy terms, that they are frequently in our Colleges, or in the profession of law, medicine, or divinity; but that rigidity of procedure should be pursued without respect to family or person, and that none but those well qualified, should graduate.* This would not only render the business of teaching respectable, but likewise exclude ignorance, or immorality from the superintendence of academical insti-

* Let there be a law enacted, as in this and some other States, that if any person open a school, without having been duly examined and admitted, he should be severely punished. It would not answer, however, to enact laws, and not carry them into execution. It is better to make no laws, than to forego them after they are made. Impunity encourages the commission of crime, and the violation of law.

tutions. As much attention should be given to ascertain the moral qualifications of a preceptor, as those of a divine, and as great care should be used in the admission of the one to holy orders, as the other to "teach the young idea how to shoot." Were this done, I have no doubt, that as great an emulation to become eminent, as a teacher, would exist, and as much respectability and talents be enlisted in the avocation, as in any other literary pursuit; and our youth be materially benefitted.

If we view the subject in its proper light, it must be allowed, that, those who are to form the minds and hearts of the hopes of our country, should be well informed; and until this be done, I fear that our youth will not receive that solid instruction which is essential to the production of good, great and learned men.

W.

THE GLEANER.

NO. III.

It has been found, that in proportion as the judgment has been enlightened by education, attention has been providently directed towards the future, and that the desire of respect, or distinction, or honourable independence, acts with no less vigour than the desire of present enjoyment. It is only by cultivation that the sphere of judgment can be thus enlarged, and I am, I confess, extremely anxious for the establishment of this point, as I consider it to be one in which the interests of society are deeply involved: for, if the judgment is to be improved in exact proportion as the objects on which it is exercised are multiplied, it affords an unanswerable argument, not only for extending the advantages of education, but for permitting the freedom of discussion to all orders and classes in the community.

In persons whose judgment has been most effectually cultivated, we may still observe how much the faculty of its operation depends on the direction given to the power of attention.—Illustrious examples might be given of men who excelled in oratory, and who, nevertheless, have miserably failed in literary composition; while, on the other hand, we have numerous instances of men, who, in their writings, exhibited incontestible proofs of their having acquired the utmost command of language, and the greatest felicity of expression, and who yet are incapable of speaking with tolerable accuracy. Now, there can be no doubt that the proper selection of words, either in public speaking or in writing, is an exercise of judgment. But, as the same

form of expression which best suits the purpose of the orator, would by no means be suitable to the philosopher or historian, the attention will, in either instance, be directed towards those combinations which, when clothed in appropriate language, are calculated to make that sort of impression which he desires to effect. His judgment will consequently be habitually exercised in the same direction, and in those, as in every other instance, will be found to operate with more or less facility, according to the degree of attention that has been bestowed.

This subject may be farther illustrated, by examining a few of the many instances in which the powers of reasoning, taste, and fancy, have a partial operation, and are readily exercised on some peculiar class of objects, but seem totally inefficient when applied to others equally within the province of the same faculty.

Let us observe, in the first place, the effects produced by directing the attention in every process of reasoning, exclusively to the strict and proper meaning of words. Words are the signs by which the ideas signified are to be conveyed to the mind, and, consequently, towards the exercise of the power of reasoning, attention to the force and meaning of the terms employed is indispensably requisite. Without such attention we can neither reason nor understand the reasoning of others.

But if attention be exclusively directed to the signification of words and terms, it will be only concerning the meaning of words that the power of reasoning will be found to operate. The reasoning of such a person, with regard to the propriety or impropriety of adopting certain phrases, or certain modes of expression, will, in all probability, be just and accurate; but it is as probable that his reasonings, on the truth or falsehood of a proposition in politics, morals, or divinity, will be weak, inconclusive, or absurd. They can scarcely, indeed, be otherwise, if, instead of attending to the sense in which the terms of the proposition are evidently stated, he takes them in another sense; and into this error, from the previous habits of his mind, he will be extremely liable to fall.

A similar consequence will result from habitually confining the attention to any particular field of inquiry, or any particular mode of reasoning. It is thus, that among great scholars we sometimes meet with men, who comprehend not the form of any arguments that are not formed on the model of their particular school. To persons of this description, wisdom will cry in vain, if she does not send her voice from the rostrum; and truth will pass unknown, unless she be arrayed in the dress in which they have been accustomed to contemplate her. It may likewise be observed, that the same cause which prevents them from discovering truth out of the limits of their own school, renders them extremely apt to be

imposed upon by phantoms dressed in its garb, when these happen to appear, where they take it for granted that truth has fixed her constant residence.

In every such instance we shall find, that attention, instead of having been directed towards the examination of those ideas which form the basis of the argument, has been occupied by certain particulars that have no necessary connexion with the point in question; this is rendered especially evident, as soon as they begin to reply to the arguments that have been urged, in support of opinions to which they have conceived an aversion, and which they believe it easy to refute. But in vain do they arm themselves for the combat: in vain do they, in attacking the adversary, put forth all their strength. From being incapable of taking a full view of what they combat, they never direct their blows so as even to hit where they intend to destroy.

The degree of attention which the young student finds it requisite to give, before he can thoroughly understand the nature of a simple proposition, is at first made with effort, more or less difficult, according as his apprehension is more or less acute. But when attention to the ideas contained in the question, proposed to him has been so repeatedly given, as to become habitual, the effort which it formerly cost is forgotten; and he thenceforth finds it as easy to discern the whole scope and term of the proposition addressed to his reason, as to behold what is placed before his eyes.

When this faculty has not been acquired by habit, no proposition will be understood, without such an effort of attention, as few, who believe themselves arrived at the years of wisdom, will listen to. By such, therefore, the whole of the ideas contained in any one of the links which form the chain of the speaker's arguments, will never be discerned. Attention will never be directed to those: the effort would be too painful. How much more painful and laborious to examine the relations of the several propositions to each other, so as to discover their agreement! There remains then but one alternative. Persons who have not, by habitual attention, acquired a facility in discerning the ideas which form the substance of a question, must either totally decline discussing the questions, of whose merits they are thus necessarily ignorant, or they must speak of them according to the notions conceived of them in their own imagination. The less they have been accustomed to examine and to analyze, the more liable will they be to adopt the latter alternative. Hence the prevalence of prejudice and self-deception. Hence too, one of the greatest and most formidable of the impediments which retard the progress of truth.

Abstract of the Report of the President and Directors of the Literary Fund, to the General Assembly of the State of Virginia; continued from page 42.

THE UNIVERSITY.

The next subject, to which the President and Directors of the Literary Fund beg leave to call the attention of the Legislature, is the establishment of an University, to be called the UNIVERSITY OF VIRGINIA. The advantages, that will result from the establishment of such an institution, are incalculable. At present, a great proportion of our youth are sent out of the state, and sometimes out of the United States, for the acquisition of science in general, or with a view to a proficiency in some of the learned professions. Large sums of money are thus annually sent away, which, if expended here for the same object, would support a liberal and extensive scheme of public instruction, and contribute in other respects greatly to the prosperity of the country. Our being tributary to a large amount to other states is, however, a small evil, compared to others we may experience. The young men of our country, by leaving their own state before their own judgments are formed, will frequently acquire elsewhere habits and opinions uncongenial with those of their fellow citizens. Estranged by absence from the customs, and principles of their parents and their ancestors, they return in some degree aliens to their native land. Every enlightened statesman must consider the education of the youth of a country, as intimately and inseparably connected with its prosperity. It is a high and solemn duty, which the government is bound by every consideration of patriotism and interest to discharge. How affecting, then, must it be to every Virginian, who is alive to the honour and happiness of his country, to reflect, that so large a portion of our youth should seek in other states, and amongst strangers, that instruction which they ought to have found at home.

The term University comprehends the whole circle of the arts and sciences, and extends to the utmost boundaries of human knowledge. The system of instruction, which is adopted in any country, ought certainly to have relation to the peculiar situation of the people amongst whom it is to operate. In the populous countries of Europe, where labour is cheap, where all the active professions are overstocked, and where there are multitudes of persons who devote themselves to literary and scientific pursuits, or the cultivation of the arts, human knowledge, which is derived from books, must necessarily have attained a higher degree of perfection, than in a country yet in its infant state, where every

man is engaged in the exercise of a trade or profession, or in pushing his fortune by enterprize and industry. Here the population is thin, and we find very few who devote themselves exclusively to scientific researches. In European countries too, colleges and universities being old establishments, perfected by the experience of ages, and enriched by large and successive endowments, they can be carried on, upon a scale which would be wholly incompatible with the means of a state which is making its first effort to establish such institutions, nor are the kinds of studies which are adapted to the wants of European countries, precisely those which are suited to the situation of our own. Some of the arts and sciences which contribute to the ornament of society, and are peculiar objects of pursuit in older countries, must be postponed, at least, to the cultivation of those which are essential to the welfare of the community. Not that these should be proscribed in our institutions, but attended to as secondary to such as are more useful and important in their nature. It would be a fatal error in us, in the formation of the system now to be adopted, to attempt to commence on too large a scale. It is the part of wisdom to begin with moderation, and to improve as it advances, rather than, by an unnatural or gigantic effort, to exhaust its own powers, and bring on premature debility and decay. If we proceed with caution if we keep in view the situation of the country, and the extent of our means, if those means receive improvements, of which they are susceptible; and the Legislature still extends to the Literary Fund their fostering care and protection, it is confidently believed, that the period is not far distant, when the anticipations of the enlightened friends of public instruction will be realized. The President and Directors of the Literary Fund, upon the best consideration they can give the subject, recommend as follow:

1. That there shall be appointed by the Legislature five commissioners, who shall purchase, or accept, in some central and healthy part of the commonwealth, to be designated by the Legislature, such a quantity of land, as will be, not only sufficient for the use of the University, but to prevent establishments in its neighbourhood, that would endanger the morals of the students, or their being seduced from their studies: and provided that it shall be sanctioned by the executive, the said commissioners shall proceed to contract for, cause to be erected, under the control of the executive, all the necessary buildings for an University, to be called the University of Virginia, the expense of erecting which buildings, and of the land, if purchased, shall be paid for, out of the Literary Fund.

2. That, when the said buildings are complete, the said commissioners shall purchase, for the use of the said University, all necessary furniture, to be

paid for out of the Literary Fund, subject to the control of the President and Directors thereof.

3. That, as soon as the said buildings shall be finished, the governor, with the advice of the council of state, shall proceed to appoint fifteen visitors, who shall serve one year; after which, the said governor and council shall annually make a similar appointment of the same visitors, or others, which said fifteen visitors, the two senior judges of the court of appeal, the governor for the time being, and one of the Directors of the Literary Fund, to be annually designated by the board, shall be visitors of the University of Virginia; shall have the power to make all bye-laws, rules and regulations for the government of the University and the good order of the same, as to them shall seem fit; provided they are not inconsistent with the laws of this commonwealth; and that they shall have power to appoint the President and Professors, hereinafter provided for, and to have a general superintendence and control of the said University.

4. That there shall be appointed by the visitors, nine Professors of the said University, one of whom shall act as President, but shall discharge the duties of one of the Professorships. That the Professorships shall consist of the following:—1. A professor of Moral Philosophy, Rhetoric and Belles Lettres. 2. A Professor of Law and Police. 3. A Professor of Mathematics. 4. A Professor of Natural Philosophy. 5. A Professor of Anatomy and Medicine. 6. A Professor of Military Science. 7. A Professor of Ancient and Modern Languages. 8. A Professor of the Fine Arts. 9. A Professor of Chemistry.—That there be paid quarter-yearly to the said President and Professors, reasonable salaries, out of the Literary Fund. That the said visitors shall keep a regular journal of the proceedings, in which they shall state particularly the manner in which the University is conducted; the rules they may adopt for its government; the progress which is made in science therein, and every thing of importance connected therewith, to be annually submitted to the General Assembly.

5. That there be educated, boarded and clothed, at the public expense, to be paid out of the Literary Fund, ten young men, to be selected by the visitors from the candidates in the academies, before spoken of. Each young man so educated, shall remain for four years at said university; and in case of vacancies, they shall be supplied by the choice of the visitors, out of the academies aforesaid. Each of whom so educated, shall be bound to serve four years in either of the academies, as principal or assistant teacher, if required. That the visitors of the said University shall supply the said scholars, who are to be educated at the public expense, with the necessary clothing, books and stationary, to be paid for, out of the Literary Fund.

6. That there be established on the foundation of said University seven fellowships, which are to be filled by the appointment of the visitors, out of the most learned and meritorious of those who have graduated at said University, who shall receive annually, reasonable and moderate salaries out of the Literary Fund, shall be obliged, if required, to serve four years as principal teachers in one of the district academies.

There are two things recommended in the above plan, which demand some explanation. The first is the recommendation of a Professor of Military Science, and the second the adoption of fellowships, on the foundation of the University. In relation to the first, the President and Directors of the Literary Fund, beg leave to remark, that there is a great want of Military Science in our country. That, though the government of the United States have the power to establish Military Schools, and have established one, yet that is not commensurate with the wants of the country; nor does it preclude the necessity; or lessen the duty of the state, to impart to their citizens such a share of the Military art, as may be highly essential in time of war, when the safety of the state may be endangered.—In free governments, great reliance is placed in the first stages of war, indeed through all time of a defensive war, on militia. In republics, every soldier is a citizen, which renders it a solemn duty that, to a certain extent, every citizen should be a soldier. It is not enough, that every man understands that the country ought to be preserved independent; that he possesses certain rights which are sacred and imprescriptible; there is an obligation on him, to place himself in a situation, and obtain that knowledge, which shall enable him to preserve the high privileges he possesses, and transmit them unimpaired to posterity. This power, military science confers. For, though valour and patriotism will do much, yet they will do much more when combined with discipline and military information. An occasion now offers of communicating to the youth of our country, upon whom we must rely as its defenders, the principles of military science, to a considerable extent. It is not expected that the lectures, or instruction of a professor, can alone make an officer. But they may lay a foundation of knowledge, which will be highly useful in the formation of the military man. It is believed that the Professor of Military Science, would embrace in his course of instruction, amongst others, the following objects: Engineering and Gunnery: the formation and laying off of camps; the means of preserving the health of soldiers; camp discipline and police: the apparatus of war: the formation of arsenals magazines, and fortifications.—It would be useful also, if the Professor of Military Science, should have authority to employ, as auxiliary to his pro-

fessorship, a fit person to instruct the students in the manual exercise, the use of the broad sword, fencing, and the elements of military tactics, so as to enable them to understand and to direct or perform the more simple evolutions. These athletic and manly exercises, might be used in the intervals of study, and whilst they would win our youth from habits of dissipation, give grace and agility to the body, and preserve their health, they would familiarize them with military ideas, and the use of arms.

The recommendation of the establishment of fellowships is founded on a wish to encourage the ardent pursuits of science in such young men, who, though destitute of the means of obtaining an education, have been selected for their talents, and instructed and supported at the public expense. It is to them we ought to look, as the source which is to supply us with teachers and professors; and these by the service they will render in imparting instruction to the youth of the country, will amply repay what that country has done for their benefit. Besides, it is a consideration of great importance, that you create a corps of literary men, who enabled by receiving a decent competence, to devote their whole time to the pursuits of science, will enlarge its boundaries, and diffuse through the community a taste and relish for the charms of literature. The effect produced by concentrating at one place many literary men, whose co-operation, as well as whose collisions, will excite a generous spirit of emulation, is incalculable.

In recommending the establishment of new schools, academies, and an university, the president and directors confine themselves within the limits of the resolution of the general assembly. But, in inquiring into the best means to advance by new institutions, the cause of public institutions, we must not be unmindful that we have at present in the state, various academies and a college. Several of these academies are believed to be very respectable; and the propriety of including them in the general system, by imparting to them a portion of the Literary Fund, has been already suggested. In relation to the college of William and Mary, it affords the President and Directors great pleasure to be enabled to state, that they have every reason to believe that this institution affords at present strong evidence of prosperity; that the professorships are filled with ability; and that the students are numerous, and increasing daily. The commonwealth is greatly interested in the welfare of this institution, and ought to count largely on the assistance it will afford in diffusing the benefits of science and literature amongst our citizens. The funds of the college are believed to be ample for its ordinary expenditure; but if any assistance is required, the President and Directors recommend to the General Assembly

to appropriate an adequate sum, out of the Literary Fund.

The President and Directors have submitted to the legislature what they consider the best organization of schools, &c. for the commonwealth; but they are not so sanguine as to believe that it can be carried into effect at once to its full extent, without a considerable augmentation of their funds. It is, therefore, respectfully referred to the legislature to decide, whether it would not be better to execute the system by degrees; to extend its operation, as the fund may be increased; and in its application always to keep in view the ultimate completion of the whole. With these impressions, it is recommended, that the product of the fund be immediately applied to the establishment of a school in each township, as indicated by the foregoing plan; that an academy be then established in each district; and that, after the accomplishment of these objects, the surplus that may remain, be applied to found and support the University of Virginia.—In order to expedite the operation and perfection of the system, it is earnestly recommended to the General Assembly to augment the fund, by additional appropriations. In recommending to commence with Primary Schools, the President and Directors have been influenced by no considerations, but a belief that the greatest public benefit would be thereby derived. It is supposed that no fewer than twenty thousand of the youth of this state may receive instruction in these schools at the same time. The President and Directors cannot believe that an object of so much importance ought to be postponed for any other. But they trust that, from their preference of these, no inference will be drawn of their entertaining opinions unfavourable to the other branches of the system; or that their execution should be delayed one moment beyond the period when it may be practicable.

The President and Directors of the Literary Fund also recommend, that the trustees of the Primary Schools be permitted (when practicable to adopt in them) the new mode of teaching, invented by Joseph Lancaster. It is believed, that this plan is admirably adapted for imparting the elements of learning, and as Lancasterian schools begin to be diffused throughout the country, the faculties of acquiring teachers, qualified to instruct on that plan, will be increased.

[To be Continued.]

In the future numbers of this paper, we intend giving an ample and succinct exposition of the Lancasterian system of instruction, and showing the practicability of introducing it, generally, into the Primary schools throughout our country. Teachers in every section of the United States, acquainted with the genuine principles of this new, inge-

nious and interesting mode of teaching, are respectfully requested to transmit them (post paid) to the editors of the Academician. They make this request because they are desirous of laying before their readers a plan of instruction which they believe to be of vital importance to the American people.

To the Editors of the Academician.

Permit me to tender my acknowledgments, for the favourable manner in which you have noticed my late work, the *Emigrant's Guide*. I must take the liberty to trespass upon your indulgence, by offering to the public, through the medium of your useful Journal, some explanation of the cause of some apparent omissions in the *Guide*.

From an experience of upwards of thirty years west of the Alleghany mountains, I am enabled to assert that all attempts, at giving in any shape the prices of land, labour, expense of living, or of the products of human industry, in such a country, is much worse than deception. Every thing in the Western States, that depends upon the moral advance of society, is usually in progress, and always unequally in equal times and different places.

All that can be done in a statistical work upon such countries, is to give an accurate description of places, the productions natural and artificial, with the present population.

In private conversation, I have been frequently desired to state the prices of land in given places; and have been always obliged to decline an attempt to convey information upon a subject of daily fluctuation. The quality of the soil, timber, minerals, fossils, or other natural products I have always anxiously inquired after, and as far as my researches have been successful, have given the fruit to the public. I have the fond consciousness of never having by any means contributed to inflame the too common, and far too ardent desire of western emigration.

The question still remains undetermined, whether the vine and olive can by any fair prospect of success be introduced into the United States. The only means of rationally examining this subject, is to institute a comparison between countries where those vegetables are cultivated, with those to whom they are intended to be conveyed. The only part of Europe, that bears any thing like a resemblance to the regions along the north side of the Gulf of Mexico, is the south of France. Rozier's work is by far the most accurate statistical work on France that has ever been published. In fine, all that is said upon our Western States and Territories, in my

Guide I think will be found correct, at least I hope nothing is given that can deceive.

Gentlemen, yours with respect,
WILLIAM DARBY.

REVIEW OF BOOKS.

ΔΙΟΝΥΣΙΟΥ ΛΟΓΓΙΝΟΥ ΠΕΡΙ ΥΨΟΥΣ ΤΗΟΜ-
ΝΗΜΑ, Dionysii Longini De Sublimitate Commenta-
rius, Quem nova versione donavit, notis illustravit, et
partim manuscriptorum ope, partim conjecturâ emen-
davit (additis etiam omnibus ejusdem auctoris frag-
mentis) Zacharias Pearce. Hanc primam editionem
Americanam multis mendis expurgatam, et complu-
ribus notulis partim alienis, partim suis, auctam in
lucem protulit, P. Wilson, LL. D. in Collegio Co-
lumbiano, Nov-Eboracensi, litt. Lat. et Græc, &c.
Professor.—Novi-Eboraci impensis Ebenez. F. Bac-
kus, Albaniae; Typis D. & G. Bruce.

Our learned professor, one of whose valuable works, we have noticed in our second number, has been pleased to favour the literary world with the first American Edition of *Longinus on the sublime*, with many important notes and observations, which cannot fail of being of the highest importance to students, who are finishing the course of education generally prescribed in colleges and our most respectable academies.

To every one, who is well acquainted with the Greek Language, the writings of Longinus must appear to be of infinite value, and they have most probably been more conducive to students, in acquiring a knowledge of the art of composing with elegance and pathos, than those of any other writer whether ancient or modern.

Of the precise time or place of his nativity, history has given no definite account; but we are told in his own writings, that after travelling in search of knowledge through several countries, and becoming acquainted with the most learned men in the age, in which he lived, he settled at Athens, where he composed the work, of which, as we have before observed, the first American Edition is now before us.

It would not comport with our plan to present our readers, in the present article, with a biographical sketch of the life of Longinus. It may not, however, be improper to mention, that soon after he had published his "*Commentary on the sublime*," he became so famous in Athens, that celebrated seat of learning, that no publication, on any subject whatever, could be well received, unless it had first met with his approbation. All the learned held him in

the highest estimation, and Plato, in particular celebrated regularly, every year, his birth day with the greatest splendour. The fame of a man so much esteemed for the correctness of his morals, as well as the superiority of his intellectual faculties, could not escape the notice of Kings and Princes at a distance. He was accordingly invited by Zenobia, queen of Palmyra, to superintend the education of her sons, and her confidence in him soon became so great, that he not only performed the duty of a preceptor to her children; but was her prime minister and counsellor in all matters respecting peace and war. The emperor Aurelian invaded her territories, and by the advice of Longinus, all the means in her power were employed for the protection of her subjects from a foreign yoke. Her troops were, however, bribed by the emperor, and her territories being taken possession of, Aurelian basely put Longinus to death, A. D. 273. As an example of his fortitude and resolution, when death stared him in the face, he thus consoled his friends, who were bewailing his fate: "If" said he, "the earth ought to be considered as a great prison, that man ought to be deemed the most happy, who can soonest get free from his confinement."

Thus perished the illustrious and learned Longinus, "a man who," as Pophry says, "was the greatest of all critics, and whom the wisest men in his day, were accustomed to call a *living library and a walking museum*."

Of the writings of this author, on the sublime, many editions have been published, most of which considerably vary from each other. To restore the text, to its original purity has been the design of our learned professor, and, in our opinion, he has happily succeeded.

If Longinus has written upon the most important subject, his language is often so elevated as to be above the comprehension of common capacities. To former editions of this important work, which is the last Greek book put into the hands of students, in the college, explanatory notes have been written by different men of learning and genius, in various parts of Europe, the most eminent of whom was the celebrated Dr. Zachariah Pearce, Bishop of Rochester, who published his first edition of this justly celebrated work in the year 1724.

This edition, however, though more correct than any, which preceded it, in respect to the text, as well as the Latin translation and the notes and annotations, is far from being free from faults. To rectify these has been the object of our learned professor, who by comparing different editions, has endeavoured to restore the text to its original correctness. This must have been attended with much labour; but we are led to believe, that if he has not wholly gained his object, he has made a successful approximation. He has, likewise, materially improved the Latin translation, and amended, as well as

considerably enlarged, the notes and annotations.

To this edition is added a copious index of the words, and most remarkable phrases, which occur in the work, and names of the various authors, which are quoted by Longinus.

From the circumstance, that the printers employed on this work were entirely ignorant of the Greek and Latin languages, it has unavoidably happened, that, notwithstanding the great care of the editor, sundry errors have occurred in the text, as well as in the notes and in the Latin translation. These errors had been corrected by the editor; but owing to the cause, which has been already mentioned, they have not been rectified by the compositors. These mistakes, however, are carefully noted in the *errata*, and will be found by the intelligent student to be of so trifling a nature, that they can be easily detected, and without a reference to the concluding page.

We are, however, of opinion, that with the addition of Dr. Wilson's valuable notes, and the other important improvements, that the work will be highly acceptable to Greek scholars, and redound much to the credit of the author.

PHILOLOGICAL DEPARTMENT.

GRAMMAR. Continued from page 46.

SECT. II.

Concrete and Abstract Nouns.

Nouns are either concrete or abstract. A concrete noun signifies a congeries of qualities habitually presented together in nature. An abstract noun signifies a quality separately conceived.

The words "man," "woman," "wood," "stone," "house," "city," are examples of *concrete nouns*. They are the same that have been considered by grammarians and metaphysicians as the names of substantives, that is, of substrata possessing definite qualities. The qualities and the substances have been supposed to be firmly conjoined; hence the name concrete, by which their nature is expressed, is derived from the Latin words *con* and *cretus*, signifying "grown together." Though the hypothesis of a substratum is rejected, the term *concrete* is perfectly well adapted to represent a congeries of qualities which have become associated in the mind, in consequence of certain specimens of them in nature being habitually found in conjunction. The name of a person well known to us suggests some or all of the qualities by which he is distinguished, such as his appearance, the sound of his voice, and the particulars of his personal character. The name

of any well-known river, hamlet, field, or other inanimate object, suggests, in like manner, the distinguishing characters of each. The same thing is even done, though in a different way, by concrete terms of more general application, such as the words "river," "mountain," and "city." Sometimes one quality of the object, and sometimes several, occur to the mind as associated with the word; sometimes merely a vague impression of a scene, in which we expect to find certain qualities which are the objects of our remembrance. The limits within which the expectations connected with words of this sort are confined constitute their precise meaning, or mental definition.

The scene by which we are continually surrounded consists of groups of sensible qualities, which are various in extent, and variously combined. This diversity gives origin to a diversity of terms. Terms are rendered necessary on account of the subserviency of many surrounding objects to our first wants, and their importance as instruments of mutual assistance among men. When they are present, we may, by merely looking or pointing at them, direct to them the attention of one another, and, when they are absent, we may think of them independently of any names. But, when one man wishes to execute any purpose regarding them in their absence by exciting the ideas of them in the mind of another, he requires signs to represent them; and from the familiarity of the mind with these objects, the contrivance of names becomes a very early operation of the social individual.

Abstract nouns are those which signify qualities separately conceived, such as "whiteness," "roundness," "softness," "form," "magnitude," "beauty." The nature of these nouns, and of the objects which they designate, has given rise to controversy. Some have denied that they express definite or separate ideas, because qualities never exist by themselves, but are always attached to some substance; and because it is impossible even to think of the qualities without thinking of the substance. It has, for example, been declared impossible to think of whiteness, blackness, redness, straightness, or hardness, without thinking of a thing or substance which is white, black, red, straight or hard. In so far as this doctrine implies the impossibility of thinking of qualities without the substrata, it has been already discussed, and must be laid aside by every person who recollects that the substratum is regarded, even by those who believe most firmly in its existence, as the most difficult to be apprehended of all material objects. Those who imagine that they think about substances to which such qualities as have now been mentioned belong, merely think more or less obscurely of other qualities with which they have a strong inclination to connect those which happen to be na-

med. Each quality is an independent object of knowledge: but the ideas of different qualities are strongly associated in the mind, and the activity and versatility of its operations produce a proneness to conjoin each one that comes into view with others conceived to be collateral. During the first evolution of our senses, our knowledge is acquired by attending to single qualities. Persons who are born blind or deaf, and consequently have none of the ideas imparted by that sense which is deficient to mingle with their other ideas, retain through life a separate conception of certain material qualities which, by the greater part of mankind, are constantly associated with others. When a person, under these circumstances, happens to recover the deficient faculty, the ideas which it conveys are at first separate, and it is only by experience that the habit of associating them with others is gradually produced. This process has been illustrated in the history of persons born blind from an opacity in the crystalline lens of the eye, and cured by a surgical operation, at a period of life when their mental faculties were so far unfolded as to enable them to describe their sensations. In mankind at large, the combinations of sensible ideas are formed long before language is attended to; and on this account the structure of language affords no analytical view of the process. If it did, the names of single qualities would be the simplest words, and the names of the assemblages which we denominate matter or substance would be comparatively compound. The reverse of this is the case. The names of habitual assemblages of objects are less compound, because the utility of assigning names to them is of prior suggestion. Single qualities are later in becoming leading subjects of discourse, and hence their names are later in assuming the form of substantive nouns. "Whiteness," "blackness," "redness," "hardness," "straightness," "roundness," are not so short as many names of objects, which comprehend one of these qualities in combination with several others. "Egg" is a shorter word than "whiteness," "soot" than "blackness." Even the names of single qualities comprehend, in their original formation, a general mark of reference to some congeries of which they are supposed to form a part, and the name is subordinate in discourse to the name of some such congeries. "White" is the name of a quality, and contains a reference to some congeries to which it is described as belonging. The separate consideration of the quality is a subsequent object of interest; therefore the term for it is of subsequent creation, and an additional sign to denote this separate consideration is attached to it. This sign is the termination "ness." From "white," we have "whiteness;" from "red," "redness;" from "round," "roundness;" from "great," "greatness." Different languages have different terminations adapted

to the same purpose. From the Latin *magnus*, we have *magnitudo* in Latin, and "magnitude" in English.

Some have denied that we can have any ideas of separate qualities. It must be granted, as has been already observed, that the human mind has a strong propensity to conjoin different qualities mutually as objects of thought, and thus form conceptions of compound individuals. We mentioned, however, that it ought to be recollected, that a person whose sensibilities are only as yet beginning to be unfolded has separate perceptions of the different qualities. It is now further to be observed that any person, even one whose habits of association are most inveterate, may direct his *chief* attention to one particular quality. Others may indeed involuntarily intrude in combination with it, or he may have occasion to think of the relations in which it stands to others; but this one in particular is distinguished as the chief object of his attention, and is also thought of with constancy, while the others with which it is accidentally associated are both less attended to and in themselves varying. We therefore see no impropriety in saying that this is a separate object of thought. We are certainly entitled to regard it as a separate subject of discourse. It is this alone that gives origin to such terms, and confers on them all their meaning and utility. If the present were a proper occasion for entering on such disquisitions, we might shew that even the names of concrete objects do not always excite in the mind the same constant and definite ideas, which are, on mature consideration, attached to them. When a concrete noun implies many ideas, we do not think of the whole of them. When it implies very few, we think of something else with which we suppose them to be in contact. It is seldom that the mind is occupied with the full meaning of any word, to the total exclusion of other ideas. Very little difference, therefore, exists betwixt our mode of conceiving the objects signified by concrete and those signified by abstract nouns. The comparatively complicated form of the latter arises from the comparative recency of the period at which a distinction becomes requisite, for denoting single qualities as the principal subjects of discourse.

[To be Continued.]

GEOGRAPHICAL DEPARTMENT.

Continued from page 48.

The expedition of Alexander constitutes an era in the history of ancient geography. As eager to be thought the patron of science as the conqueror of the world, he was careful on all occasions to blend the two characters, and judiciously left to

posterity an accurate geographical account of his expeditions, as the most durable monument of his military glory. His successors indeed, however anxious they were to imitate him in other respects, did not shew the same predilection for literary fame. But from the school which he established in Alexandria, the light of science continued to emanate with increasing splendour; and even to one of his generals, Seleucus Nicanor, who carried his victorious arms from the Indus, where Alexander's expedition terminated, to the mouth of the Ganges, geography was not a little indebted. His ambassadors Megasthenes and Daimachus, who were sent to Palibothra, the capital of a large kingdom on the Ganges, and thought to be the Allahabad, or according to others, Baliputra of modern India, collected a great deal of important information with regard to the natural history of the country, as well as the manners of the inhabitants. The spirit of commercial enterprise, which prevailed particularly in Greece during the century after Alexander's death, served not only to keep up a constant intercourse with the countries thus discovered, but also to extend the boundaries of geography to others before unknown. The Grecian kings of Egypt carried on a regular trade with India and Taprobane (Ceylon,) while the Carthaginians extended their commerce along the western coast, as well as into the interior of Africa. The Romans also having obtained possession of all Italy, began to aspire after foreign conquest. Their expeditions against Carthage made them acquainted with Africa, and what was of still greater consequence, taught them the construction and management of ships. In the Macedonian war they acquired a knowledge of Greece, and rendered themselves formidable in Asia Minor by the defeat of Antiochus. Their subsequent conquests were still more important in a geographical point of view. Julius Cæsar gave the earliest and the most accurate account of the interior of Gaul and the south of Britain; Germanicus penetrated as far as Elbe, and Elius Gallus traversed the interior of Arabia. Thus, by the commencement of the christian æra, geography had received a vast accession, not merely in extent, but in point of accuracy. Countries that had only been heard of from the casual visit of a solitary traveller, or misrepresented by the selfish policy of the avaricious trader, were now familiarly known from the march of victorious armies, whose leaders were as anxious to describe as to conquer, and by a happy combination of events, a Strabo arose to transmit an account of all these discoveries to posterity. Of the elegant and learned work of this celebrated writer, we cannot pretend to give any thing like an analysis and indeed no analysis could do it justice. We have only to observe, that the portion of the globe, which he describes is bound-

ded on the north by the Baltic, towards the east by the Ganges, and on the south nearly by the line joining the mouth of that river with the mouth of the Senegal. Of course his description of all the countries contained within these limits cannot be equally minute, nor is he always accurate in his delineation of those that were more perfectly known. He is frequently mistaken with regard to the situation of particular places, the course of rivers, and the direction of chains of mountains. These, however, are errors which will readily be overlooked, when we consider the period at which the work was composed, a period when the traveller had to struggle with difficulties in all inland expeditions, and the geographer laboured under disadvantages from the want or the imperfection of instruments, of which moderns can hardly form an idea.

The only other subject which we would notice as connected with this period of ancient geography, is the situation of the much disputed Thule. Pytheas, a navigator of Marseilles, who lived a short time before Alexander the Great, after having explored the east, or as he thought the north-east coast of Britain, continued his voyage, as he says, to the north, that is to the north-east, and after six days fell in with land which he calls Thule or Thyle, and which he states to be 46,300 stadia from the equator. The situation of this place has long been a disputed point both with ancient and modern writers, and the difficulty arises from not knowing, in the first place, which of the ancient stadia is here meant, and secondly, what was the precise length of the stadium. The different kinds of stadia in use among the ancients, are generally reduced, by modern geographers, to four, but the respective lengths of these have by no means been accurately determined. Without, however, entering into a detail of the various opinions which have been entertained on the subject, we shall merely state that of an eminent writer, which is perhaps as accurate as any other. This author (M. Gosselin) supposes, that of the longest stadia 666 2-3 were equal to one degree of the equator, of the second kind 700, of the third 833 1-3, and of the fourth or Egyptian 1111 1-9. Applying these different measures successfully to Pytheas's account, we shall have for the latitude of Thule $69^{\circ} 27'$; $66^{\circ} 8'$; $55^{\circ} 34'$, and $41^{\circ} 40'$. Of these results the third appears to be the most probable, as it determines Thule to be on the west coast of Jutland, and as it is to Jutland only that Pytheas's description can at all apply. He says, for example, that there the sea, the earth, and the air, seem to be confounded in one element; a description strikingly applicable to the downs of Jutland, where the sand is frequently driven about with violent winds, and being scattered over the surface of the marshes, conceals from the unwary

traveller the gulf beneath. His account of the produce of the country is equally applicable; and the whole is rendered more probable, from there being in Jutland, about a degree farther north than the situation of Thule, as now determined, a part of the coast still denominated Thy or Thyland, and in the ancient language of Scandinavia, Thiuland. Other arguments might be urged in favour of this opinion, notwithstanding the scepticism of Strabo, and other ancient geographers; but more, perhaps, has already been said on the subject that is consistent with the nature of our plan.

For some time after the commencement of the Christian era, the progress of geographical discovery was neither rapid nor very extensive. The Romans had by this time, indeed, subdued the greater part of the known world, and had consequently a great deal in their power with regard to the advancement of science. But their attention was directed more to what they already knew, than what they might still have to discover. They soon began to perceive that conquests were more easily made than retained, and that, by attempting to gain more, they might eventually lose what they already possessed. They had therefore no longer any inducement to extend their researches into foreign countries for the purpose of conquest, scarcely even for military renown; and thus geography was deprived of the aid which it had formerly derived from a spirit of military adventure, and to which, more than any other circumstance, perhaps, it was indebted for its success.—Nor had the Romans the same temptation as formerly to explore unknown regions, for the purpose of commerce. Asia continued long to supply them in abundance with every luxury which they could desire, through the ordinary channel; and while that supply kept pace with the demand, it was not to be expected that they would give themselves much trouble either about discovering new countries, or exploring new channels of communication with such as were already known to them. Add to all this, that geographical discovery was approaching that point, when its farther extension could only be looked for in the event of some new and important improvement in the art of navigation, or some discovery in those sciences on which it chiefly depends. But though these circumstances were sufficient to prevent the Romans from extending in any great degree the sphere of geographical knowledge, they were by no means inattentive to the cultivation of the science in general. The civil and military establishments which they were obliged to maintain in all the conquered provinces, and the security which trade enjoyed under a regular and efficient government, gave rise to a closer and more regular intercourse among all the countries which composed the empire, than had ever been

known in any former period. Were we indeed to point out the limits of Roman Geography, we should probably not include a much greater extent than has been already assigned to that of Strabo. But in point of accuracy and minute detail, the difference is considerably in favour of the former. They were well acquainted with all the countries on the Danube and the Vistula, nor was the Rha or Wolga unknown to them, though sometimes confounded with the Tanais or Don. Of the intermediate space, containing Scythia, Sarmatia, and Dacia, we have accounts from various Roman writers, though it is obvious that in many things they follow Herodotus. Their knowledge of the countries on the southern coasts of the Baltic, as well as Jutland, then called Cimbria Chersonesus, was tolerably accurate with regard to situation and extent; but the origin and names of the different nations were by no means well ascertained, and notwithstanding the labours of modern geographers and critics, they are still involved in darkness and confusion. The Romans little thought in the meridian of their glory, that they were ultimately to fall a sacrifice to the ravages of nations so barbarous as to be without the limits of the civilized world, and so rude as to be incapable of communicating to others any account of their own origin or early history. Of the countries to the north of the Baltic, the Romans knew comparatively little. The southern part of Sweden was denominated Scandia, and was considered as an island of unknown extent. It seems, indeed, to have been the general opinion, that the Baltic was part of the northern ocean, containing an archipelago of large islands, and it may perhaps be inferred from this opinion, that their geographical knowledge, in this direction, did not extend beyond the large lakes in the south of Sweden, and the entrance of the gulf of Bothnia. Proceeding westward, the next country we meet with in the geography of the Romans is Britain, of which we have a very minute account, comprehending not only the main-land of England and Scotland, but also Ireland, the Isle of Man, the Western Islands, and the Orkneys. Ptolemy speaks of Thule as situated to the north-east of Britain, by which he has been understood as meaning one of the Shetland islands. It cannot, however, be inferred from this, that the Romans were really acquainted with these islands. Of Gaul and the other western countries of Europe, it is hardly necessary to take any notice; the Roman accounts of these being familiar to every body.

ARITHMETICAL AND MATHEMATICAL DEPARTMENT.

Continued from page 48.

It has been intimated before, that Gerbert introdu-

ced from Spain the Arabian Arithmetic. Jordanus Nemorarius was the first European author, who is known to have used the Arabian Algorithm. He was eminent for his time (13 Century) in Arithmetic and Geometry, as may be judged by his treatise on the Planisphere, and his ten books of Arithmetic. In the fifteenth Century, Purbach distinguished himself by his writings on Arithmetic, Gnomonics, &c. He made very great improvements in Trigonometry, by introducing the decimal division of the radius. He supposed it to be divided into 600,000 equal parts, and computed the sines of the arcs for every ten minutes in such equal parts of the radius, by the decimal notation. His friend and pupil, Regiomontanus, completed this work, by computing these sines to every minute of the quadrant in 1,000,000th parts of the radius.

This transfer of the table of sines from the sexagesimal to the decimal scale, may be considered as the first introduction of the Decimal Arithmetic. It was also used by Ramus in his treatise of Arithmetic, written in 1550, and by Buckley and Recorde before his time. But it was Stevinus, who first wrote an express treatise on Decimals, about the year 1582, in *La Practique d'Arithmetique*. Since his time, this subject has usually formed a part of every treatise on Arithmetic.

Having thus given a brief account of the origin of this science, and the successive improvements, made by the most eminent authors who have written on it, we shall proceed agreeably to the plan in our prospectus.

OF NOTATION AND NUMERATION.

Notation is the representing of any given number by means of certain significant characters, or numerical symbols; and thus stands in contradistinction to Numeration, which is the wording, or expressing in words any number, represented by those symbols.

It is highly probable, that in the early stages of society, every distinct number had a peculiar characteristic representative, which must, however, have led to great difficulty and embarrassment, on account of the great number of different characters, with which the memory must have been incumbered; at the same time its application must have been extremely limited. As soon, therefore, as the state of society required the use of great numbers, which must have immediately followed the introduction of commerce, it became necessary to have a more concise notation; and the most proper method of accomplishing this, was, that of giving to each symbol a local as well as a simple value. This was as simple as ingenious; but a refinement, that could hardly be expected in the first rude efforts of the human mind, and probably there are now no traces left of the first attempts of this kind.

We know of only three different modes of notation, namely, the Roman, the Grecian, and the Indian or Arabian; the latter of which is the only one at present used in Europe and America in Arithmetical calculations. Each of these agrees in one material point, which is that of dividing all numbers into periods of tens, a custom almost universally adopted by all nations: and, as this is not the best number, that might have been employed, we must look to some general physical cause, for this singular coincidence of different people, many of whom had probably no intercourse with each other. Nature has furnished this great and universal standard of notation in the fingers of the hand,—those instruments with which the savage lays hold of his prey. All nations have accordingly reckoned by fives, and some barbarous tribes have scarcely advanced farther. Aristotle was aware of this principle, and has noticed the existence of such a people in Africa. After the fingers of one hand had been counted over, it was a second, and perhaps a distant step to proceed to those of the other. The ten fingers, or digits, of both hands being reckoned up, it then became necessary to repeat the operation. And committing to their memory, that they had already counted one period of ten, a second and third, &c. they still continued to count in the same manner, and still employed their fingers as the proper instruments for assisting the memory in retaining the number of these periods. Such is the foundation of our decimal or decadal scale of notation in Arithmetic. Language still betrays by its structure, the original mode of proceeding. To express the numbers beyond ten, the Laplanders, as we learn from Leems, combine an ordinal with a cardinal digit. Thus eleven, twelve, &c. they denominate *second* ten and one, *second* ten and two, &c. and in like manner, they call, twenty-one, twenty-two, &c. *third* ten and one, and *third* ten and two, &c. According to the learned Adelung, our term eleven or in German, *elf*, merely signifies, leave one, being derived from *ein* or one, and the old verb *liben*, to remain. In the Salic law it is written *anilaf*; in Kero, it is *cinlif*; in Tatian, *einliven*; and in Ottofried, *cinlif*. The true signification of eleven, is therefore, one, leave or set aside ten. Twelve is of the like signification, and means two, laying aside the ten. The same idea is suggested by our termination *ty*, corresponding to the German *zig*, in the words *twenty*, *thirty*, &c. This syllable; altogether distinct from ten, is derived from *ziehen*, to draw; from which comes the substantive *zug*, a draught. In the old German authors, it was written *zoch*, *zug*, *zuc*, or *zeg*; in Anglo Saxon, it is *tig*; in the Salic laws, *toc*, in Swedish, *tio*; and in Icelandic, *tiga*. Twenty must thus mean strictly two drawings; or it signifies, that the hands have been twice closed, and the fingers counted over. Thus we are enabled to assign a satisfactory reason for the apparent anomaly in calling 11, 12, 13, 14, 15, 16, 17, 18, 19 by the names usually given them, instead

of ten one, ten two, ten three, &c. to ten nine, as the general rule would seem to require.

After *ten* was firmly established, as the basis of notation, it was the easiest way to proceed by repeated composition. Both hands being closed ten times, would carry the reckoning up to a *hundred*. This word originally *hund* is of uncertain derivation; but the term of *thousand* which occurs in the stage of the progress, or the hundred added ten times, is clearly traced out, being only a contraction of *duis-hand* or *twice hundred*, that is, the repetition or collection of hundreds.

Thus having endeavoured to assign a satisfactory reason for the decadal radix of our notation, we shall proceed to explain more particularly, how successive numbers are expressed by means of the different combinations and arrangement of the ten following characters or symbols, viz.

0	1	2	3	4	5	6	7	8	9
cipher,	one,	two,	three,	four,	five,	six,	seven,	eight,	nine.

It is easy to perceive, that, with these ten characters, we can reckon from nothing to nine inclusively, without seeking for any new artifice; but not further. Arithmeticians, therefore, besides the unit of the species to be reckoned which is called the principal unit, have imagined others which are called the *collective units*, which may also be reckoned from nothing to nine inclusively; and by the aid of these collective units, all possible numbers arising from the repetition of the principal unit may be expressed, in the manner we are going to explain.

It consists in giving to each of the significant figures, 1, 2, 3, &c. to 9, a local or relative value which depends on the place, they stand in when joined together. Thus 1 when it stands alone signifies one, but when joined with the cipher, (10) and signifies ten. In a similar way, 20 stands for twenty, 30 for thirty, 40 for forty, and so on, till we arrive to 10 tens or a hundred, which, according to this analogy are written 100. In this way, we easily perceive, how ten of the principal units or units of the *first degree* form one of the *second degree*, and ten of the second, one of the *third*, which is called a hundred. To express the intermediate numbers between the tens, we substitute in the room of the cipher, their excess above the next lower order of tens. Thus, if we wish to write thirty-five in figures, since thirty is written 30, we have only to write 5 in the place of 0, and it becomes 35 or thirty-five. The different numbers of hundreds have no particular names; they are specified by the name *hundred* preceded by the word which expresses their number; thus 200 is named two hundred, and the remaining hundreds are written 300, 400, 500, 600, 700, 800, 900, and named three hundred, four hundred, &c. to nine hundred.

The reading of a number represented by three figures, is performed by pronouncing first the number of hundreds, represented by the figure in the third place; and afterwards the names of the numbers re-

presented by the two figures which stand in the second and first places: For example 364 is pronounced three hundred and sixty four, 807 eight hundred and seven, and 290 two hundred and ninety.

Of ten units of the third degree called *hundreds* is formed a unit of the fourth degree called a *thousand*. Those new collective units may be reckoned, as the other collective units already mentioned from nothing to nine, and the figure which represents a number of them is always set down in the fourth place to the left of the *hundreds*. By continuing in this manner to form new collective units, each consisting of ten units of the degree, that immediately precedes, there will result a progression of units decuple of each other, by means of which, it is easy to perceive, that all possible numbers however great, may be represented, employing only the ten characters 0, 1, 2, 3, 4, 5, 6, 7, 8, 9.

The three figures, which occupy the three first places, have particular names, that which stands in the first place is called *simple units*, that in the second, *tens*, and that in the third *hundreds*. Particular names might, in like manner, be given to the units of higher degrees, but as those new names would burden the memory to no purpose, and as it would be too difficult to pronounce a great number of words in a certain order; the same names of *Units*, *Tens*, *Hundreds* are given to the three following figures, which stand in the fourth, fifth and sixth places, and to every three succeeding figures: So that if the figures, which represent a great number, be parted or distinguished into periods of three figures in each period, beginning at the right hand, a number of tens in its second place; and a number of hundreds in its third place, except the last period which will not always consist of three figures, but sometimes only of one or of two; viz. a number of units or a number of units with tens.

To distinguish those periods from each other, a particular name is given to the first figure of each of them, from which the period also takes its denomination. The first figure of the first period is called *simple units*; and the first period, which also contains the tens and hundreds of simple units, is called the period of *Simple Units*. The first figure of the second period is called *thousands*, and this second period, which also contains the tens and hundreds of thousands, is called the *period of thousands*. The first figure of the third period, is called *millions*, and this period which contains also the tens and hundreds of millions, is called the *Period of Millions*.

After the period of Millions, comes that of Billions, of Trillions, of Quadrillions, of Quintillions, of Sextillions, of Septillions, of Octillions, of Nonillions, of Decillions, &c. each of which contain, their units tens and hundreds.

To numerate, therefore, any proposed number, we have no more to do, than to divide it by commas into periods of three characters each, beginning at the

right hand, and read one after another, beginning at the left hand, the numbers represented by each period, expressing the names of each period.

To illustrate these observations and render the subject easy of apprehension we insert the following Table.

PERIODS.					
6	5	4	3	2	1
Units. Tens. Hundreds. &c. &c.	Units. Tens. Hundreds.	Units. Tens. Hundreds.	Units. Tens. Hundreds.	Units. Tens. Hundreds.	Units. Tens. Hundreds.
Quadrillions.	Trillions.	Billions.	Millions.	Thousands	Units.

To show the use of this table, suppose for example it were required to write four hundred and seventy-four thousand in figures; we first write 474 and then give these figures a *local* value by means of ciphers thus 474,000. In like manner, fifteen millions, one hundred and four thousand and twenty-eight are written 15,104,028.

We further illustrate by examples.

Twenty	20
Three hundred and nine	309
Four thousand seven hundred and six	4,706
Ten thousand four hundred and sixty	10,460
One Hundred and seventy five thousand	175,000
Three millions and sixty five	3,000,065
One thousand and forty four	1,044
Twenty-five billions thirty thousand and fifty	25,000,030,050
Sixteen millions a hundred and seven	16,000,107

are written

It is required to write in figures, on the principles explained above, the following number, viz. Seventy-one *Nonillions*, seven hundred and sixty-four *Octillions*, five hundred and forty-six *Septillions*, eight hundred and nine *sextillions*, two hundred and seventy *Quintillions*, eight hundred and fifty-seven *Quadrillions*, one hundred and forty-two *Trillions*, eight hundred and fifty-seven *Billions*, one hundred

and forty-two Millions, eight hundred and fifty-seven thousands, one hundred and forty-two Units. And also to write in words at length the following number, 1844674407373709515615.* The question in notation will exhibit the number of grains of sand which Archimedes found, would form a globe as large as our earth supposing that ten grains of sand were equal in length to the diameter of a seed of coriander: that ten seeds of coriander were in length equal to an inch; that twelve inches make a foot, five feet, a geometrical pace, three thousand paces a league; that the diameter of the earth is two thousand eight hundred and sixty four leagues; and that the circumference of a circle is equal to three times its diameter, together with the seventh part of this diameter.

The question in numeration will express a number, which was represented by means of characters used by Alsephadi, long before the Arabian or Indian notation was introduced into Europe.

It may be necessary to remark in this place, a difference which exists between the French and English methods of numeration, as we have preferred the former, believing it simpler in its nature and much easier to be understood. However, as both methods agree as far as hundreds of millions, the subsequent difference may be considered as of small importance. The French Arithmeticians divide numbers into periods of three figures each, and give to each an appropriate name; whereas the English and also the Americans, (imitating them) instead of proceeding to billions after hundreds of millions, say thousands of millions, ten thousand of millions, hundreds of thousands of millions, billions. Hence the English billions are a thousand times greater than the French. The difference will be best understood by means of the following table:

FRENCH METHOD.	ENGLISH METHOD.
Units	Units
Tens	Tens
Hundreds	Hundreds
Thousands	Thousands
Tens of Thousands	Tens of Thousands
Hundreds of Thousands.	Hundreds of Thousands.
Millions.	Millions.
Tens of Millions	Tens of Millions
Hundreds of Millions.	Hundreds of Millions
Billions.	Thousands of Millions
Tens of Billions	Ten Thousands of Millions
Hundreds of Billions.	Hundreds of thousands of Millions.
Trillions.	Billions.
Tens of Trillions	Tens of Billions
Hundreds of trillions.	Hundreds of Billions. &c.
&c. &c.	&c.

[To be Continued.]

* The answers will be given in a succeeding number, and our Young readers ingenious in Arithmetic are invited to send solutions.

TO EDUCATION.

When now on Britain's sea-girt shore,
Resounds the threat'ning voice of war;
Bursts the loud cannon's frequent roar;
And glares the ensign from afar;
The Muse, who shuns the harsh alarms
That wake the madding world to arms,
And scorns to share the factious rage
That prompts to deeds of blood the age;
Turns joyful to those happier seats
Where sacred Science loves to rest,
And Genius, 'midst the calm retreats,
Pours all his influence o'er the breast:
Not more rever'd, the hallow'd bow'rs,
Where truth distill'd from Plato's honey'd tongue;
Nor those fair scenes, where Tully's happier hours
In philosophic leisure fled along.

There Education, power divine!
Her favourite temple long has plann'd;
And calls around her sacred shrine,
To guard her laws, a chosen band.
Where yon fair dome its front uprears,
Her venerable form appears;
To the young view one hand displays
The wreath of honourable Praise;
With stronger grasp her left sustains
The harsher emblems of Control,
That check wild Folly's headlong reins,
And bend the rude and stubborn soul:
In dreadful state, behind her glide
Her handmaids, Fear, and Jealousy and Shame;
By whom she knows the youthful step to guide,
To peace, to virtue, excellence, and fame.

Mark, how th' attentive votaries throng
Where she her genuine lore imparts!
And catch from her inspiring tongue
The thirst of praise, the love of arts.
As she unveils the brighter day,
The shades of error melt away;
And sacred Truth, of simple mien,
In all her native charms is seen:
—Not she who o'er her shadowy coast
Long led th' inquiring mind astray,
In dull scholastic reasonings lost;
Whilst Aristotle led the way:
But she who Bacon's vows approv'd,
And o'er his hours of meditation stole;
Who at one glance (each lingering doubt remov'd)
With charms congenial strikes the human soul.

What joy! whilst youth its aid supplies,
To trace the years that long have fled;
And bid th' illustrious forms arise,
Of sages, and of warriors dead:
In soft attention catch the sound
That Virgil's genius pours around,

Sweet, as when first the matchless song
Spontaneous echo'd from his tongue ;
With sprightly Horace smile at care,
And every fleeting hour improve ;
With exil'd Ovid drop the tear ;
And with Tibullus melt in love ;
Or when, by Cicero taught to flow,
Strong and unfetter'd rolls the nervous line,
To feel his passions, catch the genuine glow,
His conquering warmth, and energy divine.

But whilst elate the youthful bands
Each beauty of past ages share,
Her wonted victims life demands,
And points to more substantial care :
Severer studies then engage
The seasons of maturer age,
To fill with honour and with ease,
The several stations Heav'n decrees.
—Yon sprightly train, who erst were joy'd
To trace each herb of varied hue,
That decks the mountain's vernal side ;
And Nature's bashful steps pursue ;
Ere long improv'd by studious toil
Shall soothe the frame by fell disease oppress'd,
Bid brightening health diffuse her wonted smile,
And give to Friendship's vow the kindred breast.

Yon few—as yet unknown to strife—
Whom Tully's liberal spirit charms,
—Foes to the silent paths of life,
The thirst of elocution warms ;
Theirs be the task, to mark with awe
The mighty edifice of law ;
And having caught the general view,
Trace every varied chamber through :
And may they scorn the vulgar tribe,
Who sense for formal gingle slight ;
Superiour to the guilty bribe,
With learning grave, with wit polite :
By Blackstone's bright example taught,
Watch o'er each private right with generous fear ;
And with th' unconquer'd love of freedom fraught,
Preserve those claims to every Briton dear.

Yet nobler paths for some remain—
By hallow'd footsteps only trod ;
And these shall seek the sacred fane,
And give their studious hours to God.
Hark ! while th' inspiring diction flows,
Each breast with holy rapture glows ;
See trembling Guilt betrays his fears,
See sad Repentance pours her tears,
Till from her starry mansions charm'd,
The smiling cherub Peace descends,
And o'er the soul with doubts alarm'd,
Her guardian wings unseen extends.
Whilst those, attentive to the cause
Of Britain, shall devote their days ;
In the full senate meet unbought applause,
And place their glory in their country's praise.

Exulting Science now disdains

The ties of Custom's proud control
And breaks the rude and barbarous chains
That fetter'd down the freeborn soul ;
Extinguish'd now her vengeful fires,
Lo ! Superstition slow retires ;
Or from some cloister's mouldering fane,
Pours out her mutter'd curse in vain :
Whilst the warm breast, with generous joy,
Embraces all of human kind ;
And scorns each mean and narrower tie,
To climate and to sect confin'd :
Deaf to the bigot's frantic voice,
Conducts each dubious step by Reason's plan
To her unerring rule conforms its choice,
Nor tamely yields the sacred rights of man.

O ye ! whom Science chose to guide
Her unpolluted stream along,
Adorn with flowers its cultur'd side,
And to its taste allure the young ;
O say, what language can reveal
Th' exalted pleasures you must feel,
When fir'd by you, the youthful breast
Disdains to court inglorious rest :
And to the world's admiring gaze,
(Each precept into action brought)
In full reality displays
The liberal maxims you have taught ?
A transport this superior far
To all the bliss th' exulting conqueror feels,
When crowds triumphant hail him from the war,
And conquer'd nations crouch beneath his wheels.

TO CORRESPONDENTS.

We have received several communications, some of which possess merit, and shall be inserted.—Among the number, is one in condemnation of the *general diffusion of knowledge*, as being inimical to religion, and national prosperity. This would answer very well in a country, in which regal despotism and ecclesiastical tyranny, are made the engines to support their power, effected by destroying intellectual energy. God be thanked ; we have no persecuting priests, or military despots to overawe the enlightened and independent people of this country ; no inquisition, whose instruments of torture teem with the blood of men, whose opinions are not coincident with an established faith. The writer of the article alluded to, is a good companion for Doctor Mandeville of England, the persecuter of Lancaster ; who declared from the sacred desk sentiments like these, which, if they should become general, would again subject the world to gothic darkness. God be thanked, we say, there are few of Mandeville's stamp in America ; the first, whom we know to have made his appearance, is a poor advocate in his cause ; a foolish head, and principles engendered in that head, always and necessarily accompany each other. The style is equalled only by the absurdity of the matter, and well becomes the pen of a man like Mandeville, or of Bavius and Mevius, stigmatized by Horace.